REMARKS

Claims 1-12, 22, 25, and 27-37 are pending in the application. By this Amendment, claim 9 is amended and claims 13-21, 23-24, and 26 are canceled without prejudice or disclaimer. Support for the claims can be found throughout the specification, including the original claims, and the drawings. Reconsideration in view of the above amendments and following remarks is respectfully requested.

The Office Action rejected claims 1-37 under 35 U.S.C. §112, first paragraph, as based on a disclosure which is not enabling. The rejection is respectfully traversed.

More particularly, the Office Action states that "[t]he search Performance on page 2 in specification lines 13-24 is essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure." Further, the Office Action states that "Applicant does not specify explicitly the claim invention of how the large number of histogram bins is reduced or achieved a reliable performance in every case."

However, improved search performance is merely one advantage of certain embodiments of the invention. That is, page 2, lines 9-12, of the present application note that "if a unique method for the extraction of the region dominant color is not standardized and only data structure is standardized, it is impossible to maintain a compatibility of the data built in each system where a plurality of systems are used." Further, as noted at page 7, lines 19-23, of the present application, certain embodiments of the present invention provide a confidence measure that expresses the degree of accuracy of the region dominant color, which enhances search performance and that provides compatibility between region dominant colors which are

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extracted by different methods. That is, by comparing confidence measures, as discussed in the

present application, search performance can be improved and dominant color descriptors

produced by different methods can be compared, providing compatibility between systems.

Additionally, because of the confidence measure, the search performance is no longer solely

dependent on the number of bins where a histogram (used as an example on page 2) is used to

express dominant color. In fact, as noted at page 10, lines 7-10, of the present application, the

confidence measure takes into account the number of histogram bins, that is, "[i]f the number

quantization levels is too large or too small when forming the histogram, the confidence has a

small value… accordingly, it is possible to check whether a proper number of quantization levels

[is] obtained based on the confidence CM value." Thus, search preference is not an essential

component of the claimed invention, but rather merely a potential advantage of it.

Accordingly, the rejection of claims 1-37 under 35 U.S.C. §112, first paragraph, should be

withdrawn.

The Office Action rejected claims 30 and 35 under 35 U.S.C. §112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject matter which

Applicant regards as the invention. The rejection is respectfully traversed.

The Office Action states that regarding "[t]he recitation of 'the representative color value

corresponds to color value in b) when N = 1' which is disclosed in claims 30 and 35, [it is] not

clear what exactly Applicant is trying to claim?" and "[the] Examiner's interpretation: Applicant

claims in an environment that contains only one color, [ ] that color corresponds to represent

color value." The Examiner then asks what other options can correspond to the representative value.

As set forth in claim 27, the representative color value for the region is based on at least one of the information in b) and c), that is, information indicative of color values determined for respective ones of the N colors and information indicative of frequencies with which respective ones of the N colors appear in the region. Where only one color is selected for extraction from the region, $N = 1$. In such a case, the representative color value equals the color value determined in b) and is not based on the information in c). See, for example, page 9, lines 20-25 of the present application. Another option would be to base the representative color value on both the color value in b) and the frequency information in c). See, for example, page 10, lines 1-6 of the present application.

Accordingly, the rejection of claims 30 and 35 under 35 U.S.C. §112, second paragraph, should be withdrawn.

The Office Action rejected claims 1-37 under 35 U.S.C. §103(a) as being unpatentable over Graham et al. (hereinafter "Graham"), U.S. Patent No. 5,222,154, in view of Qian et al. (hereinafter "Qian"), U.S. Patent No. 6,542,632. Claims 13-21, 23-24, and 26 are canceled and therefore the rejection is moot with respect to these claims and should be withdrawn. The rejection is respectfully traversed in so far as it applies to the remaining claims.

The Office Action sets forth that Graham discloses all the claimed invention with the exception of accuracy information. The Office Action then argues that Qian teaches the coherence of a color of a picture element in relation to that of other picture elements in a

contiguous region. The Examiner then concludes that "it would have been obvious to one of

ordinary skill in the art at the time the invention was made to incorporate the teachings of Qian

into Graham in order to be invariant to certain types of transformations of the image, conserve

computational and storage resources, be insensitive to noise, and be easy to interpret in a normal

sense."

However, Graham discloses a system and method for spot color extraction (see title of

Graham). More particularly, Graham teaches a method for finding area of similar color in

electronically captured spot color images and replacing similar colors with a single dominant

color (see technical field of Graham). In the Graham method, a preview scan is performed to

obtain a low resolution image of the original [image] to be spot color extracted (see step 202 in

Figure 2 of Graham). Using the preview scan, the method teaches finding a pallet of colors

using a 3D histogram (see step 204 in Figure 2 of Graham). This step of finding the dominant

colors is accomplished by creating clusters of colors that are related.

Next, a high resolution scan is obtained in 8-bit greyscale or 24-bit color (see step 206 of

Figure 2 of Graham). Individual lines are then processed individually to find areas in each

current line that contain the same or similar colors, peak color, or color transitions. Then, the

areas of the current line are correlated with adjacent lines (see step 210 of Figure 2 of Graham).

Graham teaches that a data structure is created and updated which represents outlines of spot

areas determined in previous steps (see step 210 of Figure 2 of Graham and column 6, lines 6-8

of Graham). The system then determines if additional lines need to be processed (see step 214

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of Figure 2 of Graham). If no more lines need to be processed, the system prepares to output the spot color extracted images.

The above discussed method of Graham replaces similar colors with a single dominant color. The data structure is used to assist in the color matching process. The data structure is discussed in column 10, lines 19-26, of Graham which state that each structure comprises a color, the beginning of the color, a flag to indicate whether the area is matched with another area, and an index into the color pallet. The data structure is also discussed at column 11, lines 55-58, of Graham, which state that the five entries that make up each element of the data structure are the flag, pallet color, vertical start position, number of lines, and the horizontal position for each line.

Thus, with respect to independent claim 1, Graham fails to disclose or suggest a dominant color setting method which targets content-based retrieval for color in visual data. Rather, Graham teaches spot color extraction. Further, Graham does not disclose or suggest generating a region dominant color descriptor. Rather, Graham discloses data structures directed to information for a single line of an image. Additionally, Graham does not disclose or suggest generating a region dominant color descriptor incorporating information indicating a number of dominant colors with respect to a region of interest in visual data, at least one express dominant color, a frequency with which color appears in the region, and an accuracy of a color value representing the region. Rather, each data structure discussed by Graham discloses information directed to a single line used for color matching, including only a color, the beginning of the color, a flag to include whether the area is matched with another area, and an

index into the color pallet, or a flag, a color, vertical start position of the line, the number of

lines, and the horizontal position for each line.

Further, it would not have been obvious to modify Graham in view of Qian, as proposed

by the Examiner, as Graham is directed to a spot color extraction method and not to image

characterization for image indexing and retrieval. Because the data structure disclosed by

Graham describes merely a single line and is used for color matching as opposed to image

characterization for image indexing and retrieval, there would have been no motivation to

modify Graham in view of Qian to add accuracy information to the data structure. The

Examiner's rationale for modifying Graham in view of Qian, that is, to be invariant to certain

types of transformation of the image, conserve computational and storage resources, be

insensitive to noise, and be easy to interpret in the normal sense, is clearly not applicable.

Accordingly, the rejection of independent claim 1 over the combination of Graham and

Qian should be withdrawn. Dependent claims 2-12 are allowable over the combination of

Graham and Qian at least for the reasons discussed above with respect to independent claim 1,

from which they respectively depend, as well as for their added features.

With respect to independent claim 22, Graham fails to disclose or suggest a confidence

measure extraction method. Rather, Graham discloses a color spot extraction method. Further,

Graham does not disclose or suggest determining a count sum of a confidence and pixels as an

initial value, obtaining a value obtained by counting a color pixel corresponding to each region

dominant color with respect to all region dominant colors and a coherence corresponding to a

value obtained by each region dominant color, multiplying the coherence value and the color

pixel, adding a confidence to the multiplied value and obtaining a confidence with respect to the region dominant color, and dividing the thusly obtained confidence value by a region size and extracting a confidence with respect to the image region. Qian fails to overcome the deficiencies of Graham, as Qian is merely cited to suggest adding accuracy information to a data structure. Further, as set forth above, it would not have been obvious to modify Graham in view of Qian. Accordingly, the rejection of independent claim 22 over Graham in view of Qian should be withdrawn.

With respect to independent claim 25, Graham does not disclose or suggest an interoperability maintaining method between different retrieval systems. Rather, Graham discloses a spot color extraction method. Further, Graham does not disclose or suggest transforming, comparing and searching a sharing data format using a region descriptor of each system, a region dominant color descriptor of each system, and a region dominant color descriptor extraction method description data of each system. Rather, Graham discloses a spot color extraction method. Qian fails to overcome the deficiencies of Graham, as Qian is merely cited to suggest adding accuracy information to a data structure. Further, as discussed above, it would not have been obvious to modify Graham in view of Qian. Accordingly, the rejection of independent claim 25 over the combination of Graham and Qian should be withdrawn.

With respect to independent claim 27, Graham fails to disclose or suggest a method for describing dominant color of visual data, comprising selecting a region of interest from a media object, generating a dominant color descriptor for the region, the descriptor including a) information indicative of a number of colors (N) selected for extraction from the region, where

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$N \geq 1$, b) information indicative of color values determined for respective ones of the N colors, c) information indicative of frequencies with which respective ones of the N colors appear in the region, and d) information indicative of an accuracy of a representative color value for the region, the representative color value determined based in at least one of b) and c). As discussed above, Graham discloses a spot color extraction method and further fails to disclose or suggest the claimed descriptor. Qian fails to overcome the deficiencies of Graham, as Qian is merely cited to suggest adding accuracy information to a data structure. Further, as discussed above, it would not have been obvious to modify Graham in view of Qian.

Accordingly, the rejection of independent claim 27 over the combination of Graham and Qian should be withdrawn. Dependent claims 28-32 are allowable over the combination of Graham and Qian at least for the reasons discussed above with respect to independent claim 27, from which they depend, as well as for their added features.

With respect to independent claim 33, Graham fails to disclose or suggest a method of describing dominant color in visual data comprising, selecting a region of interest from a media object, and generating a dominant color descriptor for the region, the descriptor including a) information indicative of at least one color selected for the region, and b) information indicative of accuracy of a color value assigned to the region, the color based on the information in a). As discussed above, Graham discloses a spot color extraction method and further fails to disclose or suggest the claimed descriptor. Qian fails to overcome the deficiencies of Graham, as Qian is merely cited to suggest adding accuracy information to a data structure. Further, as discussed

above, it would not have been obvious to modify Graham in view of Qian. Accordingly, the rejection of claim 33 over the combination of Graham and Qian should be withdrawn.

With respect to independent claim 34, Graham fails to disclose or suggest a computer-readable medium for setting color information for visual data having stored thereon a) information indicative of a number of colors (N) selected for extraction from a region of a media object, where $N \geq 1$, b) information indicative of color values determined for respective ones of the N colors, c) information indicative of frequencies with which respective ones of the N colors appear in the region, and d) information indicative of an accuracy of a representative color value for the region, said representative color value determined based on the information in at least one of b) and c). As discussed above, Graham discloses a spot color extraction method and further fails to disclose or suggest the claimed descriptor. Qian fails to overcome the deficiencies of Graham, as Qian is merely cited to suggest adding accuracy information to a data structure. Further, as discussed above, it would not have been obvious to modify Graham in view of Qian.

Accordingly, the rejection of independent claim 34 over the combination of Graham and Qian should be withdrawn. Dependent claims 35-37 are allowable over the combination of Graham and Qian at least for the reasons discussed above with respect to independent claim 34, from which they depend, as well as for their added features.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes
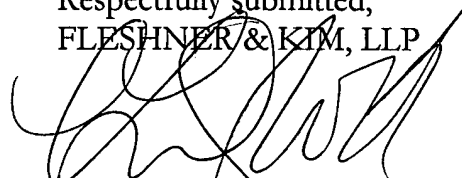
would place the application in better condition for allowance, the Examiner is invited to contact

the undersigned attorney, **Carol L. Druzbick**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is

hereby made. Please charge any shortage in fees due in connection with the filing of this,

concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and

please credit any excess fees to such deposit account.

Respectfully submitted,
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